

1 **Abstract of the Disclosure**

2 The present invention is directed to a method of apparatus of enhancing
3 the signal-to-noise ratio of a microphone array. The array includes a plurality of
4 microphones and has a directivity pattern which is adjustable based on one or more
5 parameters. The parameters are evaluated so as to realize an angular orientation of a
6 directivity pattern null. This angular orientation of the directivity pattern null
7 reduces microphone array output signal level. Parameter evaluation is performed
8 under a constraint that the null be located within a predetermined region of space.
9 Advantageously, the predetermined region of space is a region from which undesired
10 acoustic energy is expected to impinge upon the array, and the angular orientation of
11 a directivity pattern null substantially aligns with the angular orientation of
12 undesired acoustic energy. Output signals of the array microphones are modified
13 based on one or more evaluated parameters. An array output signal is formed based
14 on modified and unmodified microphone output signals. The evaluation of
15 parameters, the modification of output signals, and the formation of an array output
16 signal may be performed a plurality of times to obtain an adaptive array response.
17 Embodiments of the invention include those having a plurality of directivity patterns
18 corresponding to a plurality of frequency subbands. Illustratively, the array may
19 comprise a plurality of cardioid sensors.